

SCH4U	Organic Chemistry: Collaborative Review	Grade 12
Time: 76 minutes	Big Ideas: <ul style="list-style-type: none"> Organic compounds have predictable chemical and physical properties determined by their respective structures. Organic chemical reactions and their applications have significant implications for society, human health, and the environment. 	Materials: <ul style="list-style-type: none"> <input type="checkbox"/> Marshmallows & Toothpicks <input type="checkbox"/> Marshmallow Review Sheet <input type="checkbox"/> Teacher's Additional Notes <input type="checkbox"/> Poster size paper <input type="checkbox"/> Markers <input type="checkbox"/> Organic Model Kits <input type="checkbox"/> Jigsaw Activity page
	Ministry Expectations: Overall Expectations: B2. investigate organic compounds and organic chemical reactions, and use various methods to represent the compounds; B3. Demonstrate an understanding of the structure, properties, and chemical behaviour of compounds within each class of organic compounds. Specific Expectations: B2.1 use appropriate terminology related to organic chemistry, including, but not limited to: organic compound, functional group, saturated/unsaturated hydrocarbon, structural isomers, stereoisomer and polymer. [C] B2.2 use International Union of Pure and Applied Chemistry (IUPAC) nomenclature conventions to identify names, write chemical formulas, and create structural formulas for the different classes of organic compounds. [AI, C] B2.3 build molecular models for a variety of simple organic compounds. [PR, AI, C] B3.1 compare the different classes of organic compounds by describing the similarities and differences in names and structural formulae of the compounds within each class. B3.2 describe the similarities and differences in physical properties (e.g., solubility in different solvents, odour, melting point, boiling point) within each class of organic compounds. B3.3 explain the chemical changes that occur during various types of organic chemical reactions.	Agenda: <ol style="list-style-type: none"> Take up homework Review the types of organic compounds using marshmallows. Organic Chemistry Review (using peer-peer learning strategies, jigsaw) Class Consultation + KWL Reflection Take home Mock Test
	Learning Goals: <ul style="list-style-type: none"> To create a collaborative environment for a review of organic chemistry through group activities. Purpose is to fill in the knowledge gaps of students and a review for the unit test and exam. The topics that will be covered are: <ul style="list-style-type: none"> IUPAC naming system for hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids and ether and esters (Dependent on the number of students present, Refer to Teacher's Additional Notes) Naming and drawing of organic structures, including hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids, ether and esters. Types of chemical reactions to synthesize hydrocarbons. Recognize various physical properties (e.g. melting point, boiling point, solubility, bonding/structures) and chemical properties (e.g. alkene undergo addition, alcohols undergo elimination, etc.) of organic compounds. Understanding the reactivity of hydrocarbons, such as 1°, 2°, and 3° alcohols, carboxylic acids vs. esters and aldehydes vs. ketones. 	Assessment (A) and DI (D) Opportunities
	Prior Knowledge: Familiar with IUPAC naming system, able to recognize and illustrate organic compounds using models, and knowing the types of reactions.	

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	T/L Strategies & Rationale		Assessment/Reference
<div>Minds On...</div> <div>10 minutes</div>	Whole Class → Marshmallow Model Prep work: Create 4-5 different type of organic models (Using the Marshmallow Model Kits) for students to name using IUPAC. This should not take more than 5 minutes(Note: you can include one with an error in it because it allows student to self-correct the questions) For the Minds-on, get the students to pair up and grab a marshmallow organic model kits. Each should have a sufficient amount to create all the possible organic models that are given by the teacher. The student should have gotten the routine by now and should understand how this activity works. Read out the IUPAC names from the Marshmallow Review Sheet (Appendix I) and do a quick AfL to check the understanding of organic compounds. The Marshmallow Review Sheet contains both the question and the answer to each of the organic compounds. If majority of the students understand the material, you can move on to the Action Phase! If there many students that do not understand, take time and give them a more with some instructors before you move onto the Action Phase!		K Appendix I <i>Marshmallow Review Sheet</i> Assessment for learning
	Action! Whole Class → Instructions for jigsaw activity Prep work: Get poster size paper and markers. Set up Jigsaw (Refer to Teacher's Additional Notes) <div>5 minutes</div> Individually draw their respective organic compound. <div>5 minutes</div> Assign groups and let them form the HOME group and topic groups <div>20 minutes</div> Collaborative Group Activity with poster paper. <div>20 minutes</div> Specialist group		K <i>Teacher's Additional Notes</i> <i>Large Poster Paper</i> <i>Markers</i> <i>Organic Model Kit</i> <i>Jigsaw Activity Page</i> Assessment as Learning Assessment of learning

SCH4U	Organic Chemistry: Hydrocarbons	Grade 12
	T/L Strategies & Rationale	Assessment/Reference
Consolidate Debrief 15 minutes	<p>Individual → KWL (Knew, Want to Know, Learn) Reflection</p> <p>Students are to create a KWL table with all the categories and fill-in a minimum of 6 boxes and submitted into the drop-in box before the class ends.</p> <p>This time is also an opportunity for the teacher to review some of the problems which students were facing with towards activity. In addition, the teacher can provide information of some general misconceptions of organic chemistry.</p> <p>This activity is a combination of various techniques:</p> <ul style="list-style-type: none"> • Jigsaw (Poster as AaL) • Circuit • KWL (Submission as AoL) <p>The jigsaw strategy was used because it allows students to collaboratively work together for a facilitated peer-to-peer review session. It allows students to help one another fill in their knowledge gaps of this unit. The completed poster paper is the evidence of effective collaborative work.</p> <p>The circuit allows students to becoming an expert within their group to teach each other because the best way to learn is to teach.</p> <p>The KWL provides individual evidence of knowledge and understand of each topic that was introduced.</p> <p>The teacher can choose to have these submitted as a check and used as a study tool for the Unit Test.</p>	<p>K</p> <p>Assessment of Learning</p>
Next Steps	<p>Review Sheet → There will be a take home Mock Unit Test as a practice for the upcoming Unit Test in Organic Chemistry.</p>	Refer to notes of upcoming class.